Economic Measures of Interventions:
Building a Framework for Prioritizing Opportunities to Reduce Risk

December 2-3, 2004
University of Massachusetts Amherst

Pre-Workshop Briefing Papers

A set of **papers** was circulated prior to the conference as background for the workshop. These papers include key published work by researchers who made presentations on the first day of the workshop. These background papers reflect the state of the art at this point in time. In their workshop presentations, the researchers were asked to focus on discussing the strengths and drawbacks of the methodologies they use, how well the methodologies answer questions about the effectiveness of specific interventions and the overall targeting of intervention resources, and where the research agenda should move to improve the usefulness of economic analyses in setting priorities for reducing foodborne disease. Here is a list of the papers circulated prior to the workshop:

Barber, David A., Miller, Gay Y., and McNamara, Paul E. 2003. Models of Antimicrobial Resistance and Foodborne Illness: Examining Assumptions and Practical Applications. *Journal of Food Protection* 66(4): 700-709.

> Develops a risk assessment model for antimicrobial resistance in humans and illustrates its limitations, which are associated with a lack of scientific knowledge at different levels.

Miller, Gay Y., Liu, Xuanli, McNamara, Paul E., and Barber, David A. 2004. "The Influence of *Salmonella* in Pigs Pre-harvest on *Salmonella* Human Health Costs and Risk from Pork." Paper presented at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4.
http://agecon.lib.umn.edu/cgi-bin/pdf_view.pl?paperid=14233&ftype=.pdf

> Develops a model of pathogen dissemination through a supply chain using @Risk to estimate risks and economic impacts for humans of *Salmonella* originating in the pork supply chain. Models how actions taken at different levels of the supply chain affect the prevalence of illness in humans.

Bogaardt, M.-J., Mangen, M.-J.J., de Wit, G. A., Nauta, M.J., and Havelaar, A.H. 2004. "Controlling *Campylobacter* in the Chicken Meat Chain: Towards a Decision Support Model." Campylobacter Risk Management and Assessment (CARMA) Project, RIVM Report 250911005/2004.
http://www.rivm.nl/bibliotheek/rapporten/250911005.pdf

> CARMA is developing a risk management and assessment tool for the control of the incidence of *Campylobacter* in the chicken supply chain.

Ollinger, Michel. 2004. "The Impact of Market Mechanisms and HACCP Regulations on Food Safety Quality." Paper presented at the American Agricultural Economics Association Annual Meeting, Denver, Colorado, August 1-4.
http://agecon.lib.umn.edu/cgi-bin/detailview.pl?paperid=14109

> Develops an empirical analysis, using a censored regression model, to analyze the effectiveness of markets and regulations in improving food safety for meat and poultry.

Ollinger, Michael, Moore, Danna, and Chandran, Ram. 2004. *Meat and Poultry Plants' Food Safety Investments: Survey Findings*. United States Department of Agriculture, Economic Research Service, Technical Bulletin Number 1911, May.
http://www.ers.usda.gov/publications/tb1911/

> Uses surveys of industry to determine what measures are being taken to reduce pathogen prevalence in meat and poultry plants.

Hornibrook, S. A. and Fearne, Andrew. 2001. The Management of Perceived Risk: A Multi-tier Case Study of a UK Retail Beef Supply Chain. *Journal of Chain and Network Science* 1(2): 87-100

> Explores a series of agency problems to represent a supply chain and uses a case study method to focus on how considering perceived risks changes the nature of contracts between organizations along a supply chain.

Malcolm, Scott A., Narrod, Clare A., Roberts, Tanya, and Ollinger, Michael. 2004. Evaluating the Economic Effectiveness of Pathogen Reduction Technologies in Cattle Slaughter Plants. *Agribusiness* 20 (1): 109-123.

> Develops a probabilistic risk analysis model of typical slaughterhouse practices and links it to a decision model for evaluating the cost effectiveness of different combinations of pathogen-reducing technologies.